**ESM 102 LABORATORY SYLLABUS**

**WINTER 2015**

**SB1-424**

*Lab Instructors:*

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Cody Dieterle: email: dieterle@pdx.edu. Office: SB1 3XX.

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| *Lab Sections:* |  |
| Wed 10:15-11:05 am  Thur 10:00 – 10:50 am | Section 005, CRN: 41267  Section 006, CRN: 44355 |
| Thur 11:00 – 11:50 am | Section 007, CRN: 44356 |

*General Course Expectations:*

Attendance and participation is MANDATORY. Role will be taken at the beginning of each lab section. We also expect full attention during the labs and involvement in the discussions.

All assignments have a due date indicated in weekly schedule. **NO LATE WORK WILL BE ACCEPTED.**

**Missing more than 2 labs will result in a failing grade! Missed classes will not result in the ability to make up work. Miss the assignment in class, CANNOT hand it in a week later.**

*Learning Objectives:*

* Shift focus from natural science and management to sustainability and natural resource management (energy, water, and food systems)
* Explore how we can use science to address environmental issues and human impacts
* Understand the connectivity between these issues
* Further explore and solidify the scientific method
* Learn how to understand, interpret, and share results in a format that is useful to many stakeholders

*Grading:*

There will be several lab assignments throughout the quarter. Some of these assignments will need to be completed individually and some will provide you an opportunity to work in a group. Grading philosophy is similar to ESM 101. LOOK AT WEIGHT OF ATTENDANCE!

**Point Category Points Each Total Lab Points**

Attendance/participation 10 @ 5points 50

Assignments 3 @ 10 points 30

Quizzes 3 @ 10 points 30

Final paper 1 @ 20 points 20 .

Total 130

**Your lab grade will count as ¼ of your TOTAL lecture grade.**

*Weekly Schedule (tentative):*

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| --- | --- | --- | --- |
| **Week #  (Week of)** | **Topics** | **Assignment** | **Things Due** |
| #1  January 5 | Introduction to lab, logistics,  Ecological footprint, auditing our energy and water consumption | Ecological Footprint worksheet | Nothing… It's the first day |
| #2  January 12 | World population and thinking in terms of scale | Population Worksheet | Ecological Footprint worksheet |
| #3  January 19 | Learning units: energy units, conversions and consumption; | Energy units worksheet | Population W.S |
| #4  January 26 | Peer review of water and energy audit  Discuss workshop; energy technologies: wind, solar, coal, nuclear | Energy unit quiz online | Energy Units worksheet  **Assignment 1: Energy and Water Audit** |
| #5  February 2 | Measure energy consumption to boil water | Measurement lab write up |  |
| #6  February 9 | Share results and peer review of water boiling measurements |  | **Assignment 2: water data** |
| #7  February 16 | Water and energy in developing countries, design considerations, life cycle analysis | Energy technologies quiz online |  |
| #8  February 23 | Work session on design project |  |  |
| #9  March 2 | Design and LCA presentations |  | **Assignment 3: Design and LCA** |
| #10  March 9 | Recap scientific evaluation of designs  Evaluations, lab wrap-up | Design considerations on-line quiz  Course evaluations | **Final paper due** |
| March 16 | **FINALS WEEK**  **(lecture final only, no lab this week)** |  |  |